

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1.-9. (Canceled)

10. (Previously Presented) A two-shaft hinge enabling rotational and opening/closing movements, comprising:

an opening/closing shaft having a through hole extending therethrough in a direction perpendicular to the axis of the opening/closing shaft and dividing the opening/closing shaft into a first segment and a second segment;

a rotary shaft inserted through the through hole such that one end of the rotary shaft is provided at one side of the opening/closing shaft and an opposite end of the rotary shaft is provided at an opposite side of the opening/closing shaft;

a torque unit for independently generating a sliding frictional torque on the rotational and opening/closing movements on each of the rotary shaft and the opening/closing shaft and comprising a first fixed cam, a first rotary cam and a first spring provided on the one end of the rotary shaft, the first fixed cam and the first rotary cam being brought into abutting relationship with each other by the resilient force of the first spring, and a second fixed cam, a second rotary cam and a second spring provided on the first segment of the opening/closing shaft, the second fixed cam and second rotary cam being brought into abutting relationship with each other by the resilient force of the second spring; and

a rotation limiting mechanism for limiting the rotational movement of the rotary shaft along the opening/closing angle range of the opening/closing shaft, the rotation limiting mechanism comprising a first oval-shaped rotation limiting

plate provided on the rotary shaft and formed to have a circular long diameter section and a linear short diameter section and a second cylindrical rotation limiting plate formed to have at least one projection and at least one grooved section provided on the periphery thereof provided on the opening/closing shaft and biased by the second spring,

wherein by abutting the long diameter section of the first rotation limiting plate with the at least one grooved section of the second rotation limiting plate, the rotary shaft is allowed to rotate, by abutting the short diameter section of the first rotation limiting plate with the at least one projection of the second rotation limiting plate, the rotational movement of the rotary shaft is prevented and the first rotation limiting plate is contacted by the second rotation limiting plate at two sides thereof.

11. (Previously Presented) A two-shaft hinge according to Claim 10, wherein the opening/closing torque unit on the opening/closing shaft is arranged on one segment and the other segment comprises a space on which wiring is provided.

12. (Previously Presented) A two-shaft hinge according to Claim 10, wherein the torque unit on the opening/closing shaft comprises units at two or more locations, the units generating a frictional torque by a repulsive force of the second spring at the abutting cam faces by abutting the second rotary cam capable of rotation and the second fixed cam that is movable in an axial direction and rotates in unison with the opening/closing shaft and engaging the second fixed cam and the second rotary cam through the opening/closing shaft.

13. (Previously Presented) A two-shaft hinge according to Claim 10, wherein a range of rotation of the rotary shaft and the opening angle of the opening/closing shaft is limited by providing a stop mechanism for limiting the rotation angle

of the rotary shaft and the opening angle of the opening/closing shaft.

14. (Previously Presented) A two-shaft hinge according to Claim 10, wherein in order to generate a click action at a specified position during the rotational movement of the rotary shaft and the opening/closing movement of the opening/closing shaft, a mechanism that generates a click action is provided comprising a projection provided on each of the fixed cams and a recess provided in each of the first and second rotary cams on the shafts for generating torque and abutment of each projection on each of the fixed cams and the recess in each of the rotary cams, or by adding an abutment location of a projection on the rotary shaft and a recess in the opening/closing shaft.

15. (Previously Presented) A two-shaft hinge according to Claim 10, wherein the rotary shaft and the opening/closing shaft respectively have a cross-section formed to be a cross-section other than circular at a sliding location of their respective fixed cams so that the respective fixed cams integrally rotates with the shafts while sliding.

16. (Previously Presented) A two-shaft hinge according to Claim 10, wherein the two-shaft hinge further comprises at least two bracket components provided on each end of the opening/closing shaft to dispose and fix the two-shaft hinge to an outer frame, and the hinge is fixed by the brackets.

17. (Previously Presented) A two-shaft hinge enabling rotational and opening/closing movements, comprising:

an opening/closing shaft having a through hole extending therethrough in a direction perpendicular to the axis of the opening/closing shaft and dividing the opening/closing shaft into a first segment and a second segment;

a rotary shaft inserted through the through hole such that one end of the rotary shaft is provided at one side of the opening/closing shaft and an opposite end of the rotary shaft is provided at an opposite side of the opening/closing shaft;

a torque unit for independently generating a sliding frictional torque on the rotational and opening/closing movements on each of the rotary shaft and the opening/closing shaft and comprising a first fixed cam, a first rotary cam and a first spring provided on the one end of the rotary shaft, the first fixed cam and the first rotary cam being brought into abutting relationship with each other by the resilient force of the first spring, and a second fixed cam, a second rotary cam and a second spring provided on the first segment of the opening/closing shaft, the second fixed cam and second rotary cam being brought into abutting relationship with each other by the resilient force of the second spring; and

a rotation limiting mechanism for limiting the rotational movement of the rotary shaft along the opening/closing angle range of the opening/closing shaft, the rotation limiting mechanism comprising a first oval-shaped rotation limiting plate provided on the rotary shaft and formed to have a circular long diameter section and a linear short diameter section and a second cylindrical rotation limiting plate formed to have at least one projection and at least one grooved section provided on the periphery thereof provided on the opening/closing shaft and biased by the second spring,

wherein by abutting the long diameter section of the first rotation limiting plate with the at least one grooved section of the second rotation limiting plate, the rotary shaft is allowed to rotate, and by abutting the short diameter section of the first rotation limiting plate with the at least one projection of the second rotation limiting plate, the rotational movement of the rotary shaft is prevented, and the first rotation limiting plate is contacted by the second rotation limiting plate at one side thereof.

18. (Previously Presented) A two-shaft hinge according to Claim 17, wherein the opening/closing torque unit on the opening/closing shaft is arranged on one segment and the other segment comprises a space on which wiring is provided.

19. (Previously Presented) A two-shaft hinge according to Claim 17, wherein the opening/closing torque unit of the opening/closing shaft comprises units at two or more locations, the units generating a frictional torque by a repulsive force of the second spring at abutting cam faces by abutting the second rotary cam capable of rotation and the second fixed cam that is movable in an axial direction and rotates in unison with the opening/closing shaft and engaging the second fixed cam and the second rotary cam through the opening/closing shaft.

20. (Previously Presented) A two-shaft hinge according to Claim 17, wherein a range of rotation of the rotary shaft and the opening angle of the opening/closing shaft is limited by providing a stop mechanism for limiting the rotation angle of the rotary shaft and the opening angle of the opening/closing shaft.

21. (Currently Amended) A two-shaft hinge according to Claim 17, wherein in order to generate a click action at a specified position during the rotational movement of the rotary shaft and the opening/closing movement of the opening/closing shaft, a mechanism that generates a click action is provided comprising a projection provided on each of the fixed cams and a recess provided in each of the first and second rotary cams on the shafts for generating torque and abutment of each projection on each of the fixed cams and the recess in each of the rotary cams, or by adding an abutment location of a projection on the rotary shaft and a recess in the opening/closing shaft.

22. (Previously Presented) A two-shaft hinge according to Claim 17, wherein the rotary shaft and the opening/closing shaft respectively have a cross-section formed to be a cross-section other than circular at a sliding location of their respective fixed cams so that the respective fixed cams integrally rotates with respective shafts while sliding.

23. (Previously Presented) A two-shaft hinge according to Claim 17, wherein the two-shaft hinge further comprises at least two bracket components provided on each end of the opening/closing shaft to dispose and fix the two-shaft hinge to an outer frame, and the hinge is fixed by the brackets.